

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method of identifying differences in expression of polypeptides between two samples ~~a polypeptide~~, said method comprising:

(a) providing ~~one or more~~ a first array arrays comprising one or more polypeptides from a first complex biological sample adhered to a support;

(b) providing ~~one or more~~ a second array arrays comprising one or more polypeptides from a second complex biological sample adhered to a support;

(c) exposing a peptide-nucleic acid coupled library comprising a plurality of members (i) to one of said a first array arrays at least one time to create a first product, said first product comprising one or more members species of said peptide-nucleic acid coupled library that either (i) reversibly bind to said first array or (ii) do not bind to said first array and (ii) to a second array at least one time to create a third product, said third product comprising one or more members species of said peptide-nucleic acid coupled library that reversibly bind to said second array;

(d) exposing said first product to ~~one of said a second array arrays~~ at least one time to create a second product, said second product comprising one or more members species of said first product that either (i) bind to said second array or (ii) do not bind to said second array;

(e) ~~exposing said peptide-nucleic acid coupled library to one of said second arrays at least one time to create a third product comprising one or more species of said library that either (i) bind to said second array or (ii) do not bind to said second array; and~~

———(f) exposing said third product to ~~one of said a first array arrays~~ at least one time to create a fourth product, said fourth product comprising one or more members species of said third product that either (i) bind to said first array or (ii) do not bind to said first array,

wherein ~~the presence or absence of a member of said peptide-nucleic acid coupled library species~~ in said second product binds to a polypeptide in said first biological

sample that is expressed in a greater amount than in said second biological sample and or a member of said peptide-nucleic acid coupled library in said fourth product binds to a polypeptide in said second biological sample that is expressed in a greater amount than in said first biological sample is indicative of the identity of a polypeptide that is present in said first and second complex biological samples, absent in said first and second complex biological samples, or not present in the same amount in said first complex biological sample compared to said second complex biological sample.

2. (Canceled)

3. (Previously presented) The method of claim 1, further comprising the step of:

~~(g)~~ (f) comparing said second product and said fourth product.

4. (Currently Amended) The method of claim 1, further comprising the steps of:

~~(g)~~ (f) combining said second and fourth products to produce a pooled product;

and

~~(h)~~ (g) amplifying said pooled product.

5. (Currently Amended) The method of claim 4, further comprising the steps of:

~~(i)~~ (h) providing ~~one or more~~ a third array arrays comprising one or more members ~~species~~ from said amplified pooled product adhered to a support; and

~~(j)~~ (i) exposing said first or second complex biological sample to ~~one of said a~~ third array arrays at least one time to provide a fifth product, said fifth product comprising one or more polypeptides from said first or second complex biological sample that ~~either~~ (i) reversibly bind to said third array or (ii) do not bind to said third array.

6. (Currently Amended) The method of claim 5, further comprising the step of:

~~(k)~~ (j) exposing said first or second complex biological sample to ~~one of said a~~ third ~~array~~ arrays at least one time to provide a sixth product, said sixth product comprising one or more polypeptides from said first or second complex biological sample that ~~either (i) reversibly bind to said third array or (ii) do not bind to said third array,~~ wherein said complex biological sample is different from that used in step ~~(j)~~ (i).

7. (Currently Amended) The method of claim 6, further comprising the step of:

~~(l)~~ (k) comparing said fifth product and said sixth product.

8. (Previously presented) The method of claim 1, wherein said first or second complex biological sample is from a tissue.

9. (Original) The method of claim 8, wherein said tissue is selected from the group consisting of epithelial, connective, muscle, and nerve.

10. (Previously presented) The method of claim 1, wherein said first or second complex biological sample is from a body fluid.

11. (Original) The method of claim 10, wherein said body fluid is selected from the group consisting of cerebrospinal fluid, blood, saliva, mucous, tears, pancreatic juice, seminal fluid, sweat, milk, bile, plasma, serum, lymph, urine, pleural effusions, bronchial lavage, ascities, and synovial fluid.

12. (Original) The method of claim 11, wherein said body fluid is cerebrospinal fluid.

13. (Previously presented) The method of claim 1, wherein said first or second complex biological sample is from an organ.

14. (Previously presented) The method of claim 13, wherein said organ is selected from the group consisting of skin, bone, cartilage, tendon, ligament, skeletal muscle, smooth muscle, heart, blood, blood vessel, brain, spinal cord, peripheral nerve, nose, trachea, lung, mouth, esophagus, stomach, intestine, kidney, uterus, ureters, urethra, bladder, hypothalamus, pituitary, thyroid, pancreas, adrenal gland, ovary, oviduct, vagina, mammary gland, testicle, seminal vesicle, penis, lymph, lymph node, lymph vessel, white blood cell, T-cell and B-cell.

15. (Previously presented) The method of claim 1, wherein said first or second complex biological sample is from a cultured cell.

16. (Previously presented) The method of claim 15, wherein said cell is derived from epithelial, connective, muscle or nervous tissue.

17. (Original) The method of claim 1, wherein one of the complex biological samples is from a diseased individual and the other complex biological sample is from a non-diseased individual.

18. (Original) The method of claim 1, wherein one of the complex biological samples is from a medicated individual and the other complex biological sample is from a non-medicated individual.

19. (Original) The method of claim 1, wherein said library is a phage display library.

20. (Original) The method of claim 19, wherein said library is an antibody library.

21. (Original) The method of claim 19, wherein said library is a recombinant display library.

22. (Original) The method of claim 19, wherein said library is a synthetic peptide library.

23. – 26. (Cancelled)

27. (Previously presented) The method of claim 1, further comprising treating the first or second complex biological sample prior to adhering said one or more polypeptides to said support.

28. (Previously presented) The method of claim 27, wherein said treating comprises denaturing said one or more polypeptides.

29. (Original) The method of claim 1, wherein the support of step (a) or step (b) is a solid support.

30. (Original) The method of claim 1, wherein both the support of step (a) and the support of step (b) are solid supports.

31. (Previously presented) The method of claim 1, wherein said one or more polypeptides from said first or second complex biological samples are crosslinked to said support.

32. (Previously presented) The method of claim 1, wherein said one or more polypeptides from said first and second complex biological samples are crosslinked to said support.

33. (Currently Amended) The method of claim 5, wherein said fifth product comprises one or more polypeptides from said first or second complex biological sample that bound to the third array during the exposing step ~~(i)~~ (i) and ~~was~~ were subsequently released.

34. (Currently Amended) The method of claim 6, wherein said sixth product comprises one or more polypeptides from said first or second complex biological sample that bound to the third array during the exposing step ~~(k)~~ (j) and ~~was~~ were subsequently released.

35. (Original) The method of claim 1, further comprising the step of amplifying said second product.

36. (Previously presented) The method of claim 1, further comprising the step of amplifying said fourth product.

37. (Original) The method of claim 1, further comprising analyzing said second product via mass spectrometry.

38. (Previously presented) The method of claim 1, further comprising analyzing said fourth product via mass spectrometry.

39. (Original) The method of claim 5, further comprising analyzing said fifth product via mass spectrometry.

40. (Original) The method of claim 6, further comprising analyzing said sixth product via mass spectrometry.

41. (Original) The method of claim 7, wherein said fifth and sixth products are compared using mass spectrometry.

42. (Previously presented) The method of claim 1, wherein said library is exposed to the first array more than one time to create said first product.

43. (Previously presented) The method of claim 1, wherein said first product is exposed to the second array more than one time to create said second product.

44. (Previously presented) The method of claim 1, wherein said library is exposed to the second array more than one time to create said third product.

45. (Previously presented) The method of claim 1, wherein said third product is exposed to the first array more than one time to create said fourth product.

46. (Currently Amended) The method of claim 5, wherein the first or second complex biological sample of step (j) (i) is exposed to the third array more than one time to create said fifth product.

47. (Currently Amended) The method of claim 6, wherein the first or second complex biological sample of step ~~(k)~~ (j) is exposed to the third array more than one time to create said sixth product.

48. (Currently Amended) The method of claim 1, wherein the first arrays of step (c) and step ~~(f)~~ (e) are the same array.

49. (Currently Amended) The method of claim 1, wherein the first arrays of step (c) and step ~~(f)~~ (e) are separate arrays.

50. (Currently Amended) The method of claim 1, wherein the second arrays of step (d) and step ~~(e)~~ (c) are the same array.

51. (Currently Amended) The method of claim 1, wherein the second arrays of step (d) and step ~~(e)~~ (c) are separate arrays.

52. (Currently Amended) The method of claim 6, wherein the third arrays of step (j) and step ~~(k)~~ (i) are the same array.

53. (Currently Amended) The method of claim 6, wherein the third arrays of step (j) and step ~~(k)~~ (i) are different arrays.

54. (Previously Presented) The method of claim 1, wherein said first and second complex biological samples are from different subjects.